Confined Space Permits – LPS Elements and other modifications

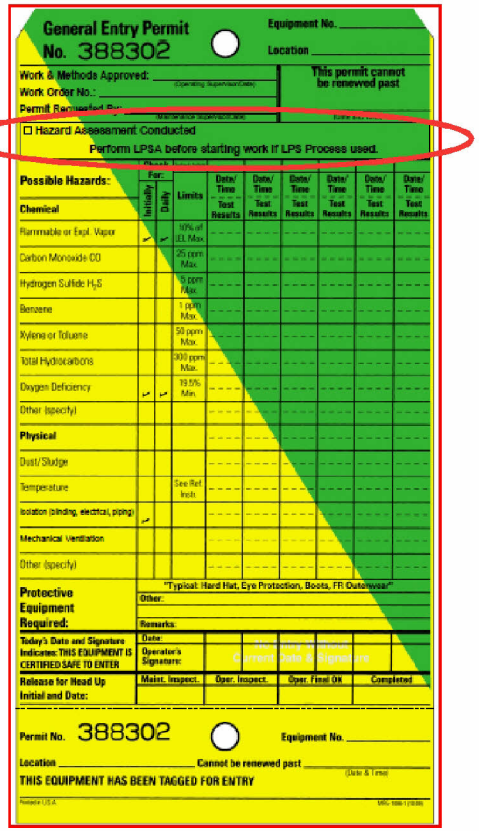
Safety Topic of the Month
Richmond Refinery

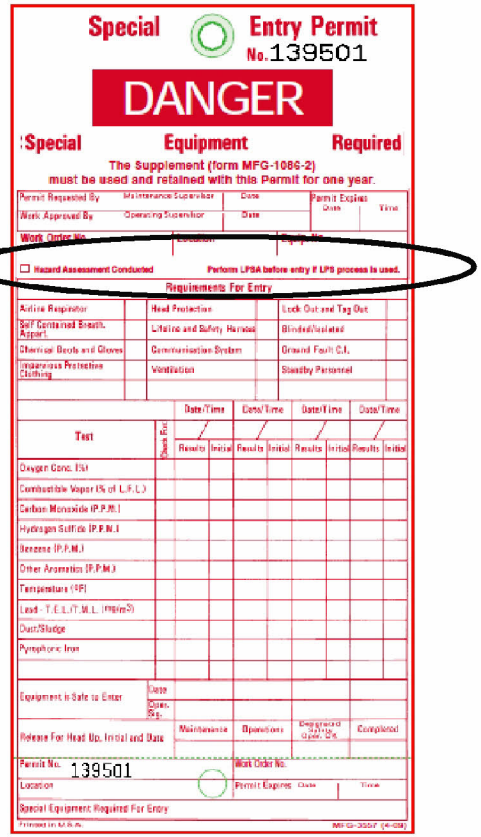
December 2009

 DOC ID

Revision of Entry Permits

The General Entry Permit (MFG-1086) and Special Entry Permit (MFG-3557) have been revised to include a Hazard Assessment section on the permit.

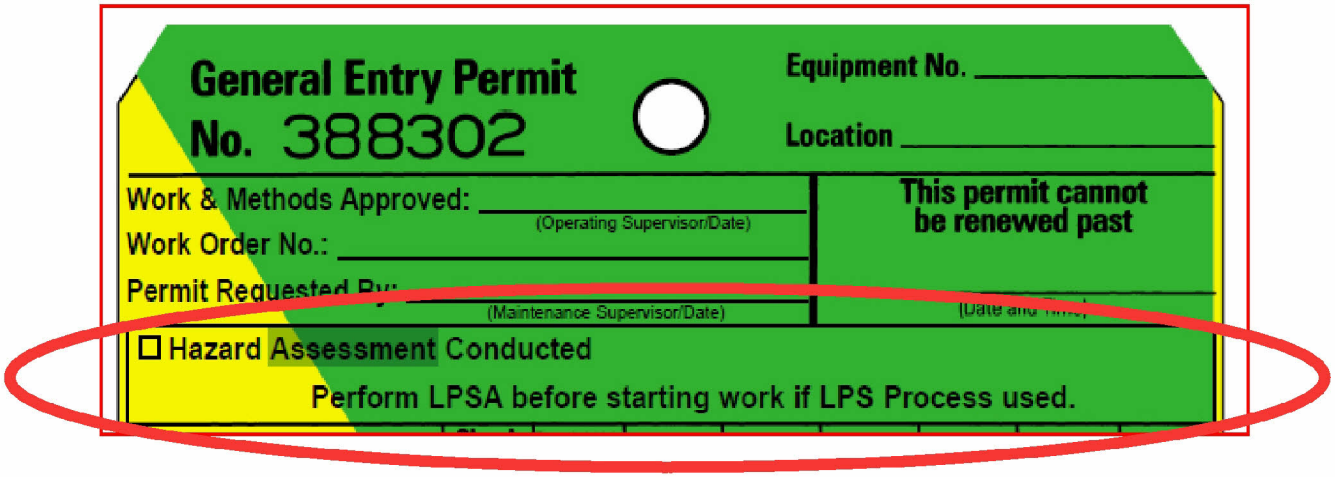




CUSA-CSB-0084848
EPA

Revision of Entry Permits

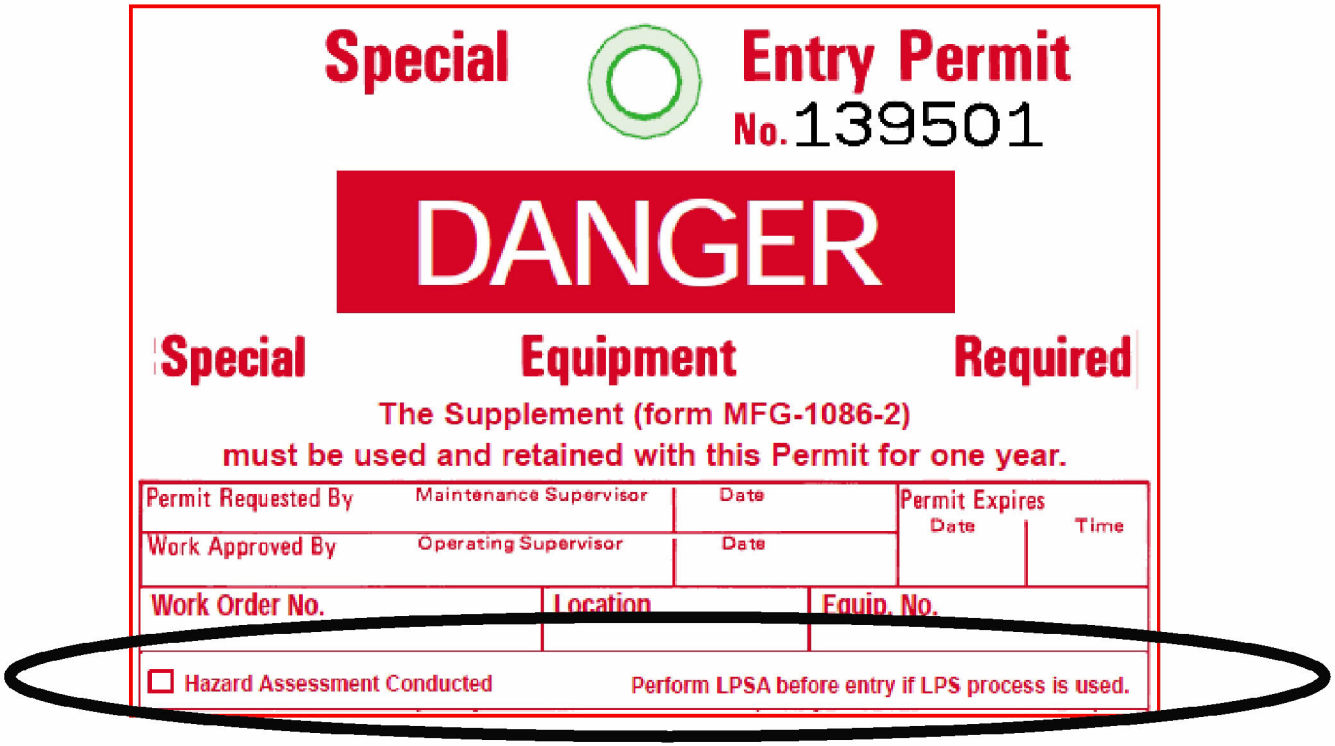
General Entry Permit (MFG-1086).



The purpose of this Safety Topic of the Month is to provide a learning format for Richmond Refinery employees to acknowledge the presence and understanding of our process.

Revision of Entry Permits

Special Entry Permit (MFG-3557)



Special **Entry Permit**
No. 139501

DANGER

Special Equipment Required

The Supplement (form MFG-1086-2)
must be used and retained with this Permit for one year.

Permit Requested By	Maintenance Supervisor	Date	Permit Expires Date	Time
Work Approved By	Operating Supervisor	Date		
Work Order No.	Location	Equip. No.		
☐ Hazard Assessment Conducted	Perform LPSA before entry if LPS process is used.			

The purpose of this Safety Topic of the Month is to provide a learning format for Richmond Refinery employees to acknowledge the presence and understanding of our process.

Confined Space Entry Permits

This month your group has the choice to use this Safety Topic of the Month as Refresher Training for General Procedures for Working In Confined Spaces. Please complete the enclosed sign in sheet and have the sheet mailed to Diane Vodenik, RIC940/BLDG227/RM15.

Sign in sheet

After a review of this material, personnel will be able to

1. Review components of RI-9920, section 6.0.
2. Identify revised elements of General and Special Entry Permits.
3. Use the entry permit and other tools to guide through and document the Hazard Assessment.

As stated in RI- 9920

The Purpose of RI-9920 is to provide operating facilities with the information and procedures necessary to ensure the safety of workers who enter and work in confined spaces.

RI-9920.6.0 Hazard Assessment

6.1 Hazardous conditions may exist or develop prior to entry or wile working in confined spaces. Operating supervisor should thoroughly assess each space for such hazard or conditions. Joint meeting should be held to discuss these hazards or conditions.

Maintenance Supervisor or Company Representative Must:

1. Initiate permit showing "Equip. No." and "Location."
2. Conduct Hazard Asessment with operating Supervisor and SIGN and date at top left in the "Permit Requested By" section.

Operating Shift Supervisor Must:

1. Ensure hazard assessment is conducted and indicate required initial checks and daily rechecks by (✓) in the "Check For" columns.

As stated in RI- 9920

RI-9920.6.0 Hazard Assessment

6.2 Some items supervisors and the person initiating the permit should consider are listed below:

1. Can contaminants be release due to deposits or as a result of chemical cleaning?
2. Is equipment properly isolated?
3. Is there an adequate number of sufficiently-sized opening for entry into enclosed or confined spaces?
4. Is ventilation required?
5. Can the equipment be tested using extendible probes or will supplied air or self-contained breathing equipment be required?
6. Should continuous monitoring gas testing be required?
7. Can atmospheric conditions change within the space due to work performed (catalyst dumping, welding, etc.)?
8. Temperature extremes which may affect workers in the space?

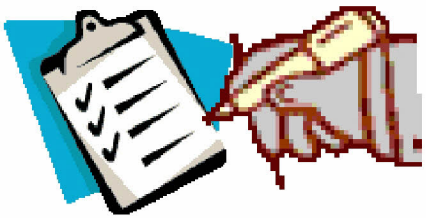
General Entry Permit Changes

Maintenance Supervisor or Company Representative Must:

1. Initiate permit showing "Equipment No." and "Location".
2. Conduct Hazard Assessment with operating Supervisor and SIGN and date at top left in the "Permit Requested By" section.

Operating Shift Supervisor Must:

1. Ensure Hazard Assessment is conducted and indicate required initial checks and daily rechecks by (✓) in the "Check For" columns.



✓ Hazard Assessment Conducted

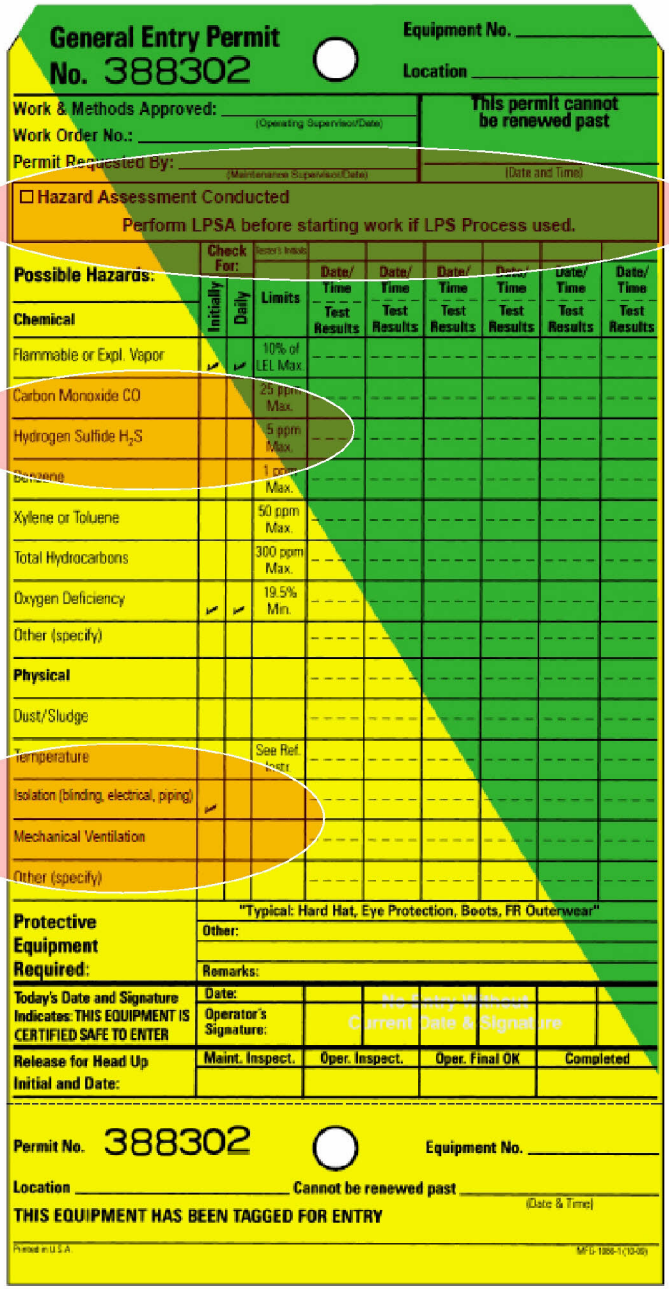
Perform LPSA before starting work if LPS Process used.

Possible Hazards:	Check For: Initially	Check For: Daily	Tester's Initials / Limits	Date/Time / Test Results	Date/Time / Test Results	Date/Time / Test Results	Date/Time / Test Results	Date/Time / Test Results	Date/Time / Test Results
Chemical									
Flammable or Expl. Vapor	✓	✓	10% of LEL Max.						
Carbon Monoxide CO	✓		25 ppm Max.						
Hydrogen Sulfide H_2S	✓		5 ppm Max.						
Benzene			1 ppm Max.						
Xylene or Toluene			50 ppm Max.						
Total Hydrocarbons			300 ppm Max.						
Oxygen Deficiency	✓	✓	19.5% Min.						
Other (specify)									
Physical									
Dust/Sludge									
Temperature			See Ref. Instr.						
Isolation (blinding, electrical, piping)	✓								
Mechanical Ventilation	✓								
Other (specify)									
Protective Equipment Required:	"Typical: Hard Hat, Eye Protection, Boots, FR Outerwear"								
	Other: *Tyvek suit, chemical gloves*								
	Remarks:								
	Date:								

General Entry Permit Changes

Changes to the front of permit

1. Hazard Assessment Conducted checkbox
2. Perform LPSA before starting work.
3. Hydrogen Sulfide (H_2S) limit changed to 5 ppm max.
4. Isolation box consolidated to include blinding, electrical, and piping.
5. Mechanical Ventilation

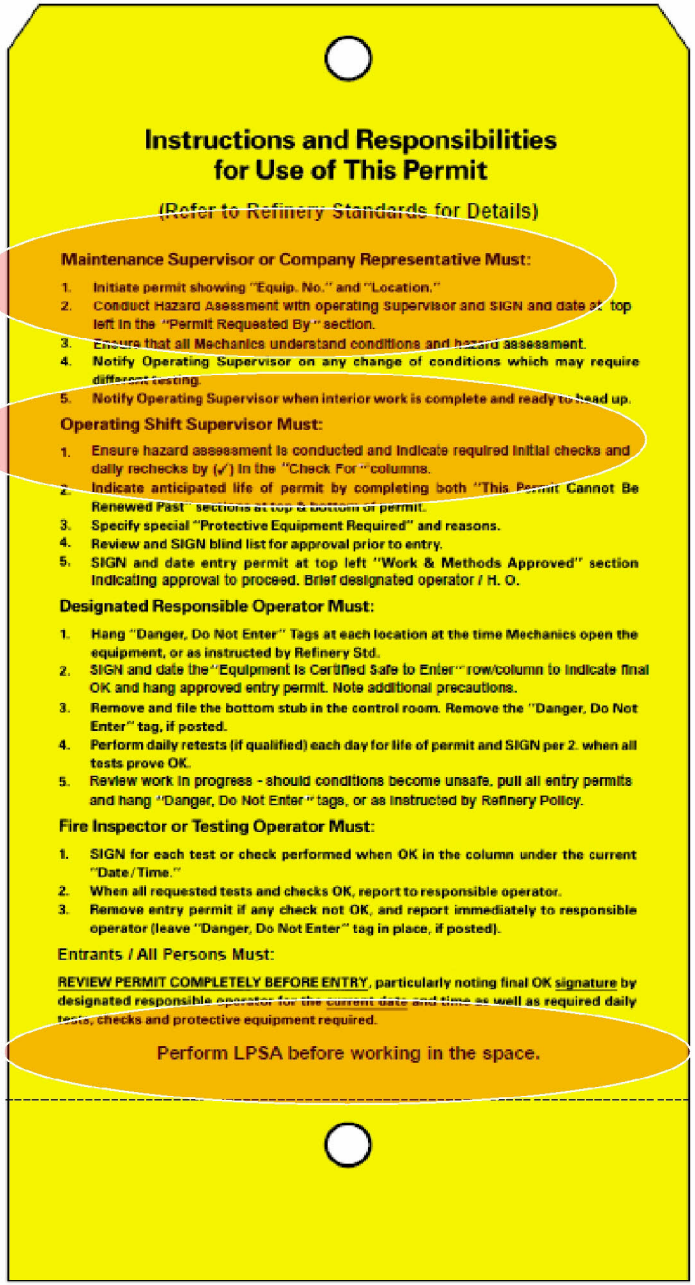


CUSA-CSB-0084855
EPA

General Entry Permit Changes

Changes to the Back

1. Hazard Assessment for Maintenance Supervisor.
2. Hazard Assessment for Operating Supervisor.
3. Perform LPSA before starting work.



Instructions and Responsibilities for Use of This Permit

(Refer to Refinery Standards for Details)

Maintenance Supervisor or Company Representative Must:

1. Initiate permit showing "Equip. No." and "Location."
2. Conduct Hazard Assessment with operating supervisor and SIGN and date at top left in the "Permit Requested By" section.
3. Ensure that all Mechanics understand conditions and hazard assessment.
4. Notify Operating Supervisor on any change of conditions which may require different testing.
5. Notify Operating Supervisor when interior work is complete and ready to head up.

Operating Shift Supervisor Must:

1. Ensure hazard assessment is conducted and indicate required initial checks and daily rechecks by (✓) in the "Check For" columns.
2. Indicate anticipated life of permit by completing both "This Permit Cannot Be Renewed Past" sections at top & bottom of permit.
3. Specify special "Protective Equipment Required" and reasons.
4. Review and SIGN blind list for approval prior to entry.
5. SIGN and date entry permit at top left "Work & Methods Approved" section indicating approval to proceed. Brief designated operator / H. O.

Designated Responsible Operator Must:

1. Hang "Danger, Do Not Enter" Tags at each location at the time Mechanics open the equipment, or as instructed by Refinery Std.
2. SIGN and date the "Equipment Is Certified Safe to Enter" row/column to indicate final OK and hang approved entry permit. Note additional precautions.
3. Remove and file the bottom stub in the control room. Remove the "Danger, Do Not Enter" tag, if posted.
4. Perform daily retests (if qualified) each day for life of permit and SIGN per 2. when all tests prove OK.
5. Review work in progress - should conditions become unsafe, pull all entry permits and hang "Danger, Do Not Enter" tags, or as instructed by Refinery Policy.

Fire Inspector or Testing Operator Must:

1. SIGN for each test or check performed when OK in the column under the current "Date / Time."
2. When all requested tests and checks OK, report to responsible operator.
3. Remove entry permit if any check not OK, and report immediately to responsible operator (leave "Danger, Do Not Enter" tag in place, if posted).

Entrants / All Persons Must:

REVIEW PERMIT COMPLETELY BEFORE ENTRY, particularly noting final OK signature by designated responsible operator for the current date and time as well as required daily tests, checks and protective equipment required.

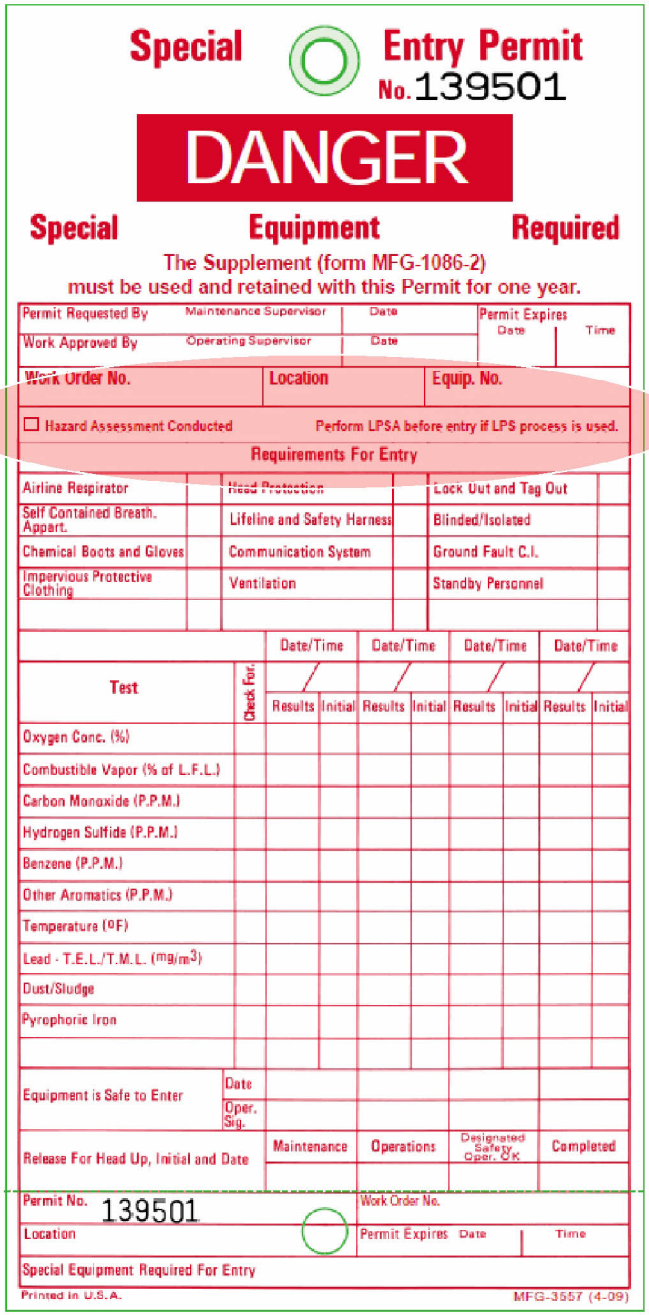
Perform LPSA before working in the space.

CUSA-CSB-0084856
EPA

Special Entry Permit Changes

Changes to the Front

1. Hazard Assessment Conducted checkbox
2. Perform LPSA before entry.



Special Entry Permit No. 139501

DANGER

Special Equipment Required

The Supplement (form MFG-1086-2) must be used and retained with this Permit for one year.

Permit Requested By	Maintenance Supervisor	Date	Permit Expires Date / Time
Work Approved By	Operating Supervisor	Date	
Work Order No.	Location	Equip. No.	

☐ Hazard Assessment Conducted — Perform LPSA before entry if LPS process is used.

Requirements For Entry

Airline Respirator	Head Protection	Lock Out and Tag Out
Self Contained Breath. Appart.	Lifeline and Safety Harness	Blinded/Isolated
Chemical Boots and Gloves	Communication System	Ground Fault C.I.
Impervious Protective Clothing	Ventilation	Standby Personnel

Test	Check For.	Date/Time Results	Initial	Date/Time Results	Initial	Date/Time Results	Initial	Date/Time Results	Initial
Oxygen Conc. (%)									
Combustible Vapor (% of L.F.L.)									
Carbon Monoxide (P.P.M.)									
Hydrogen Sulfide (P.P.M.)									
Benzene (P.P.M.)									
Other Aromatics (P.P.M.)									
Temperature (°F)									
Lead - T.E.L./T.M.L. (mg/m^3)									
Dust/Sludge									
Pyrophoric Iron									
Equipment is Safe to Enter	Date								
	Oper. Sig.								

Release For Head Up, Initial and Date	Maintenance	Operations	Designated Safety Oper. OK	Completed

Permit No. 139501 — Work Order No.

Location — Permit Expires Date / Time

Special Equipment Required For Entry

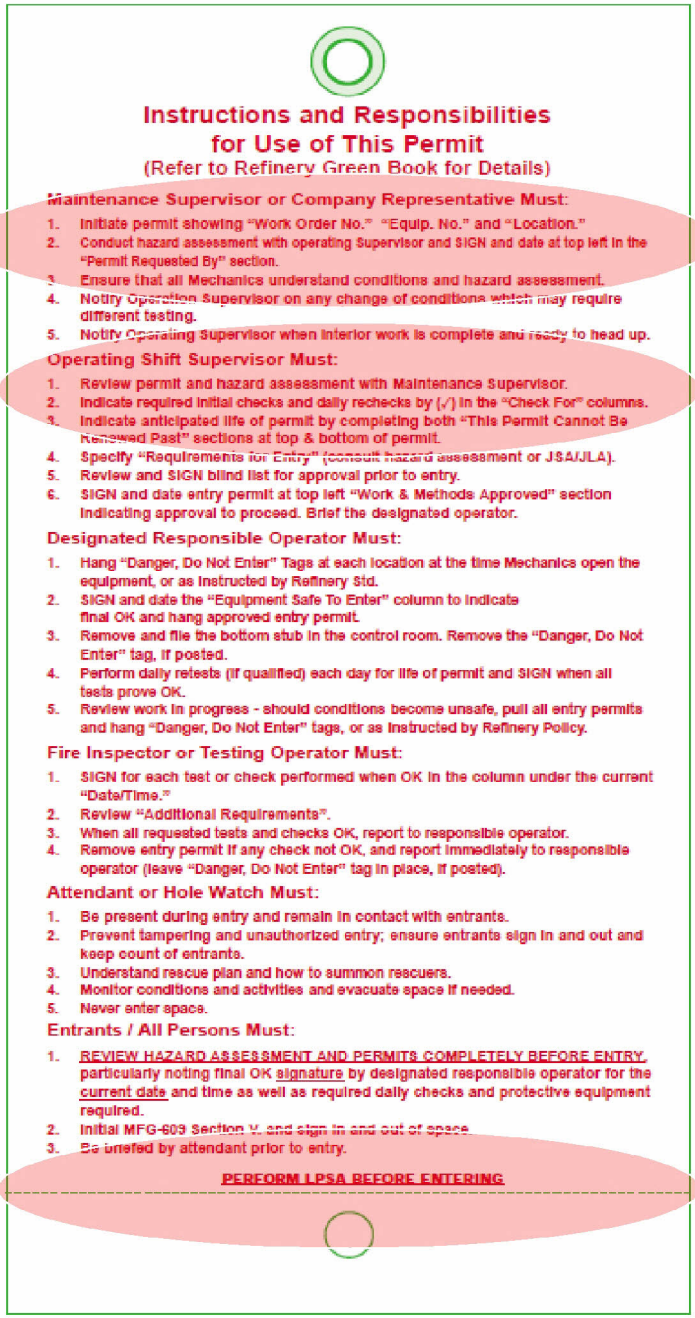
Printed in U.S.A. MFG-3557 (4-09)

CUSA-CSB-0084857
EPA

Special Entry Permit Changes

Changes to the Back

1. Hazard Assessment for Maintenance Supervisor.
2. Hazard Assessment for Operating Supervisor.
3. Perform LPSA before starting work.



Instructions and Responsibilities for Use of This Permit
(Refer to Refinery Green Book for Details)

Maintenance Supervisor or Company Representative Must:
1. Initiate permit showing "Work Order No." "Equip. No." and "Location."
2. Conduct hazard assessment with operating Supervisor and SIGN and date at top left in the "Permit Requested By" section.
3. Ensure that all Mechanics understand conditions and hazard assessment.
4. Notify Operation Supervisor on any change of conditions which may require different testing.
5. Notify Operating Supervisor when interior work is complete and ready to head up.

Operating Shift Supervisor Must:
1. Review permit and hazard assessment with Maintenance Supervisor.
2. Indicate required initial checks and daily rechecks by (√) in the "Check For" columns.
3. Indicate anticipated life of permit by completing both "This Permit Cannot Be Renewed Past" sections at top & bottom of permit.
4. Specify "Requirements for Entry" (consult hazard assessment or JSA/JLA).
5. Review and SIGN blind list for approval prior to entry.
6. SIGN and date entry permit at top left "Work & Methods Approved" section indicating approval to proceed. Brief the designated operator.

Designated Responsible Operator Must:
1. Hang "Danger, Do Not Enter" Tags at each location at the time Mechanics open the equipment, or as instructed by Refinery Std.
2. SIGN and date the "Equipment Safe To Enter" column to indicate final OK and hang approved entry permit.
3. Remove and file the bottom stub in the control room. Remove the "Danger, Do Not Enter" tag, if posted.
4. Perform daily retests (if qualified) each day for life of permit and SIGN when all tests prove OK.
5. Review work in progress - should conditions become unsafe, pull all entry permits and hang "Danger, Do Not Enter" tags, or as instructed by Refinery Policy.

Fire Inspector or Testing Operator Must:
1. SIGN for each test or check performed when OK in the column under the current "Date/Time."
2. Review "Additional Requirements".
3. When all requested tests and checks OK, report to responsible operator.
4. Remove entry permit if any check not OK, and report immediately to responsible operator (leave "Danger, Do Not Enter" tag in place, if posted).

Attendant or Hole Watch Must:
1. Be present during entry and remain in contact with entrants.
2. Prevent tampering and unauthorized entry; ensure entrants sign in and out and keep count of entrants.
3. Understand rescue plan and how to summon rescuers.
4. Monitor conditions and activities and evacuate space if needed.
5. Never enter space.

Entrants / All Persons Must:
1. REVIEW HAZARD ASSESSMENT AND PERMITS COMPLETELY BEFORE ENTRY, particularly noting final OK signature by designated responsible operator for the current date and time as well as required daily checks and protective equipment required.
2. Initial MFG-603 Section V. and sign in and out of space.
3. Be briefed by attendant prior to entry.

PERFORM LPSA BEFORE ENTERING

Additional tools for use in a Hazard Assessment

CHEVRON JOB HAZARD ANALYSIS FORM

NOTE: This form is to be brought to the work site by the first representative of each craft.

DATE:	JOB NO.:	LOCATION:
MAINT. SUPERVISOR:		PHONE NO.:
OPERATOR:		PHONE NO:

MECHANIC'S NAME	CRAFT	COMPANY

JOINT JOB SITE VISIT (JJSV) – Operator/Mechanic Discussion Completed? -->	Yes	N/A
Isolation List: Review list, operator points out all isolation and depressurization points.	☐	☐
Electrical Isolation Verification: Electrician lock on lockbox, test start/stop switch.	☐	☐
Isolation Lock Key: If no electrician, first craft representative witnesses key deposited in lockbox.	☐	☐
Locks and Tags Installed: Confirm that all locks and tags are installed per RI-9900.	☐	☐
Additional Work Permits reviewed and signed—check those that apply: ☐ Ignition Source ☐ High Heat ☐ Fresh Air ☐ General Work ☐ Excavation ☐ Confined Space ☐ Other	☐	☐
Hazardous Materials: Material: MSDS No.:	☐	☐
Personal Protective Equipment reviewed—check those that apply: ☐ Respirator ☐ Hearing Protection	☐	☐

[Please Click here to view a complete Chevron Job Hazard Analysis Form]

#5 Rheniformer– 2Q09
Confined Space Entry PPE Matrix

Location/ Task	Potential Chemical Hazards	Industrial Hygiene Sampling	MSDS Name and Number	Permissible Exposure Limits/Hazard Info (1) (2) (3)	PPE Requirements for Column, Tank or Vessel Entry (4) (5) (6)	Comments
All Hydrocarbon Equipment						
Mercury – All Hydrocarbon Equipment	Mercury	No	Mercury MSDS #DV000788	0.025 mg/m³ – 8 hr. TWA 0.0167 mg/m³ – 12 hr. TWA 0.1 mg/m³ – Ceiling 10 mg/m³ – IDLH(2)	0.025 - 0.25 mg/m³ -- ½ Face Respirator with Mercury vapor cartridges (N750052) 0.25 - 1.25 mg/m³ -- Full face Respirator with Mercury vapor cartridges (N750052) > 1.25 mg/m³ – Supplied Air	CFD will test for Ammonia and Mercury on initial entry. CFD will test using the Jerome (or equivalent) direct-reading mercury meter. The Dräger mercury tube does not read low enough to assure that no mercury is present.
Ammonia – All Hydrocarbon Equipment	Ammonia	No	Ammonia MSDS #DV000123	25 ppm – 8 hr. TWA 35 ppm – STEL 300 ppm – IDLH	Initial entry will include Ammonia testing. 25 – 250 ppm -- ½ or full face respirator with Ammonia cartridges (N75004) >250 ppm -- Contact Safety Coordinator	Ammonia testing will be conducted by CFD prior to mercury testing. Ammonia will interfere with mercury readings. If ammonia is present wear Supplied Air and remove the suspect contaminated material, and then retest the confined space for ammonia and mercury.
Total Hydrocarbons – All Hydrocarbon Equipment	Total Hydrocarbons	No		TWA – 200 ppm STEL – 500 ppm	See Comments	If sludge is present wear Poly coated Tyvek, Nitrile gloves (taped), ½ face respirator with Organic Vapor cartridges, goggles (or full face respirator with Organic Vapor cartridges), and rubber boots

Revision 1 – 4/19/09 Page 1 of 4

(1) Not expected but pre-entry sampling will be performed to confirm respiratory protection requirements.
(2) IDLH = Immediately Dangerous to Life and Health – H2S IDLH is 100 ppm.
(3) Exposure monitoring results will be adjusted, based on exposure time and length of work shift, to compare to the 8-hour Time Weighted Average (TWA).
(4) For acids/caustics – eye wash/safety shower nearby.
(5) If H2S is present, respiratory protection will be upgraded and or additional cleaning will be required.
(6) For length of time gloves should be used, contact FSC.
(7) Belzona coating PPE will be determined by application process. If solvents are used Supplied Air respirators will be necessary.
(8) The following list of metals will be found in spent Starblast Grit whenever blasting occurs and also in the metal particulates from subsequent welding and grinding. Concentrations of metals will range from non-detect to above the PEL. PPE described for Starblasting/GritBlasting inside equipment will be sufficient to protect workers from exposure. The metals are: Mercury, Thallium, Antimony, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Molybdenum, Nickel, Silver, Vanadium, Arsenic, Selenium, Barium and Zinc.
(9) TWA and STEL limits are based on ACGIH when available.
(10) If confined space hazards have been removed through mitigation or cleaning contact IH & FSC for PPE requirement changes.
(11) Supplied Air Respirator (SAR), Local Exhaust Ventilation (LEV), Confined Space or Partial Enclosure work with Alloy Metals Requires SAR.

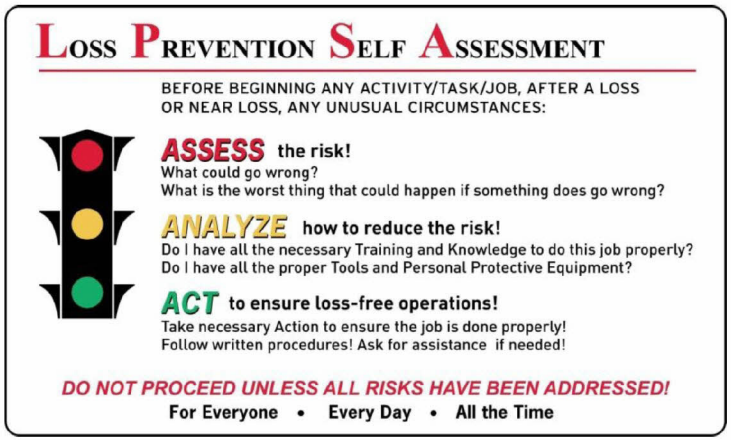
*3. The Maintenance Supervisor in charge will work with Operations and the Safety Department if necessary to ensure all entrants in the space use PPE appropriate to the hazards they may encounter. On large entries a Personal Protective Equipment (PPE) Matrix may be used to supplement the entry conditions noted on the permit.

Resources and Questions

Integrating LPS components into our permits enables those working in confined spaces to be reminded to – Assess, Analyze, and ACT to prevent losses before beginning any work.

If you have any questions concerning the new permits, please contact your field safety coordinator.

Review RI-9920



CUSA-CSB-0084860
EPA

Review TOP Lessons Learned

Learning from our past incidents will help us prevent them in the future. Please take a few minutes now to review the TOP lessons learned.

TOP Lessons Learned

 DOC ID